



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,073	03/11/2004	Christopher A. Gonzales	ITL.1108US (P18748)	5320
21906	7590	12/06/2005	EXAMINER	
TROP PRUNER & HU, PC 8554 KATY FREEWAY SUITE 100 HOUSTON, TX 77024			WALBERG, TERESA J	
			ART UNIT	PAPER NUMBER
			3753	

DATE MAILED: 12/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/798,073	Applicant(s) GONZALES ET AL.	
	Examiner Teresa J. Walberg	Art Unit 3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-11 and 13-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3-11 and 13-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hess (5,014,776).

Hess discloses a method including inserting a heat transfer fin into a dovetail shaped opening (Fig. 5) in a substrate and crimping the substrate (see Fig. 3) to secure the fin in the dovetail shaped opening and a heat sink (2) including a heat sink fin (3, 4) having a dovetail shaped lower section (Fig. 5), a conductive base(2) , the fin (3, 4) secured to the base (2), the base having a dovetail shaped cavity (Fig. 5) that conforms to the dovetail shaped lower end of the heat sink fin (Fig. 5).

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3753

4. Claims 3-5, 8, 13-15, 18, 20, 22, 23-25, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hess (5,014,776) in view of Ellsworth (2003/0221816) and Colombier et al (5,100,737).

Hess discloses the structure and method of securing the fin to the substrate, but does not disclose the structure of the fin.

Ellsworth discloses a heat transfer fin (see abstract) of a laminate of two different materials, the materials being a graphite and a metallic layer (para. 0018, lines 1-2), the materials being adhesively bonded (para. 0035, lines 10-16), and the fin being permanently secured to a heat conductive base (para. 0036) and used to cool an integrated circuit (para. 0003).

It would have been obvious in view of Ellsworth to use multiple layer fins with the heat transfer structure of Hess, the motivation being to reduce the weight of the device and improve its heat transfer.

Ellsworth does not state that the metallic layer provides structural integrity to the laminated fin, however, Colombier et al teaches that graphite layers are not structurally stable and that a metallic layer provides them with structural integrity. See col. 2, lines 43-60.

It would have been obvious in view of Colombier et al to have the metallic layer in the heat transfer fin of Hess in view of Ellsworth provide structural support to the graphite layer, the motivation being to make the fin stronger.

5. Claims 6, 7, 9, 16, 17, 19, 21, 26, 27, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hess (5,014,776) in view of Ellsworth

(2003/0221816) and Colombier et al (5,100,737) and further in view of Moresco et al (6,223,814).

Hess in view of Ellsworth and Colombier et al disclose the claimed structure and method with the exception of the aspect ratio of the fin being higher than 20:1, or being 60:1 and the metallic and non-metallic material having equal thickness. However, Moresco et al teach that it is known to use cooling fins with an aspect ratio of 20:1 and to use metallic and non-metallic material having equal thickness. It would have been obvious in view of Moresco et al to use fins with an aspect ratio of 20:1 in the heat sink of Ellsworth in view of Colombier et al to increase the surface area of the fins and thus increase their heat transfer and to use metallic and non-metallic layers of equal thickness to increase the strength and heat conductance of the fins.

While Moresco et al do not specify a fins aspect ration of higher than 20:1, at the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to use a fin aspect ration of higher than 20:1 or of 60:1 in the cooling fins of Moresco et al because Applicant has not disclosed that using a fin aspect ration of higher than 20:1 or of 60:1 provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected the cooling fins of Moresco et al, and applicant's invention, to perform equally well with either the aspect ration taught by Moresco et al or the claimed higher than 20:1 or 60:1 aspect ratio because both aspect ratios would perform the same

Art Unit: 3753

function of transferring heat equally well considering the typical power of an integrated circuit chip.

Therefore, it would have been prima facie obvious to modify Ellsworth in view of Colombier et al and further in view of Moresco et al to obtain the invention as specified because such a modification would have been considered a mere design consideration which fails to patentably distinguish over the prior art of Ellsworth in view of Moresco et al.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 depends from claim 2, which has been canceled. Since the scope of claim 10 cannot be determined, it has not been treated on the merits in this office action.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. DeWald, Jones and Lin et al are cited to show dovetail fin connections.

Art Unit: 3753

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 571-272-4790. The examiner can normally be reached on M-F 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Blau can be reached on 571-272-4406. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Teresa J. Walberg
Primary Examiner
Art Unit 3753

tjw